

REMARKS

Claims 1-11, 19-21, 23-25, 31-34, 69-74, and 78-80, are pending in the case. Claims 85-90 are added. Claims 1-6, 19-21, 23-25, 31-34, 69-74, 79-80 are rejected and claims 7-11 and 78 are objected to. All claims are shown in the previous section.

New claims 85-90 are directed to polynucleotides that hybridize under stringent hybridization conditions to SEQ ID NO: 2 or the complement of SEQ ID NO: 2, and polypeptides encoded by those polynucleotides. These claims are supported by Applicants' specification at, for example, the paragraph beginning at the bottom of page 12 and continuing on page 13, as well as the last paragraph on page 21.

I. Rejection of Claims Under 35 U.S.C. 112, First Paragraph

The Examiner maintains his rejection of claims 1-6, 19-21, 23-25, 31-34, 69-74, and 79-80 as lacking written description support. According to the Examiner, "without an explicit recitation [in the specification] of all percent homologies or percent identities of sequences mentioned in the claims, the claimed percent identities or percent homologies raise the issue of new matter. The Examiner asserts that the appropriate question is, "[W]hat did Applicants choose to claim at the time the application was filed?" Applicants respectfully disagree with the Examiner's contention that the claims lack support.

The defendants in *Union Oil Co. v. Atlantic Richfield Co.* (1998 U.S. Dist. LEXIS 22847, 13-14 (D. Cal. 1998)) argued that none of the combinations of property ranges in the claims appeared in the specification as it was originally filed, and thus, the claims lacked written description support. However, the District Court in denying the defendant's requested JMOL pointed out that "whether a patent is invalid for lack of a written description turns not on whether the specifications as filed set forth each and every facet or descriptor of the invention, but whether the written description is sufficient to be satisfied that the claimed inventor did in fact invent the patented work." When the case was appealed, the Federal Circuit quoting *In re Gosteli* (872 F.2d 1008, 1012, 10 U.S.P.Q.2D (BNA) 1614, 1618 (Fed. Cir. 1989)) asserted that the written description requirement does not require the applicant "to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." *Union Oil Co. v. Atlantic Richfield Co.*, 208 F.3d 989, 997 (Fed. Cir. 2000). It is apparent at least from these cases that "an explicit

recitation" is not necessary to find claims supported by Applicants' specification.

As shown in Tables 4 and 5 of Applicants' specification, the amino acid sequence represented by SEQ ID NO: 1 is made up of a catalytic domain, two carbohydrate binding domains, and a fibronectin domain joined together with linker domains. See paragraph spanning pages 16 and 17 of Applicants' specification. Applicants' originally filed claim 4 indicates that the carbohydrate binding domain type III can have a length of about 150 to 156 amino acids. This is one example of a sequence identity that differs from the polypeptide represented by SEQ ID NO: 4 which is approximately 153 amino acids in length (See Table 4). Applicants' originally filed claim 5 indicates that the carbohydrate binding domain type II can have a length of about 95 to 105 amino acids. This is another example of a sequence identity that differs from the polypeptide represented by SEQ ID NO: 7 which is approximately 101 amino acids in length (See Table 4). Applicants describe various ways in which the sequence identity can be altered, including additions to or subtractions from the reference sequence, as well as substitutions, fusions, truncations, etc. See page 14, first full paragraph of Applicants' specification. Thus, it is clear that Applicants had possession of polypeptides with 95% and 98% sequence identity to any one of SEQ ID NOs 4, 5, and 7. Therefore the description provided in Table 4 is adequate to support the language of claims 1-6, 19-21, 23-25, 31-34, 69-74, and 79-80.

Further, the paragraph beginning on page 17 of Applicants' specification and continuing on page 18 mentions that Applicants' polypeptides include, along with SEQ ID NO: 1, variants that have substantial identity to the amino acid sequence of SEQ ID NO: 1. Similarly, the last paragraph on page 21 states that Applicants' polynucleotides include, along with SEQ ID NO: 2, molecules having substantial nucleic acid sequence identity with the nucleic acid sequence of Table 2 and SEQ ID NO: 2. If Applicants had intended to claim only SEQ ID NO: 1, SEQ ID NO: 2, or molecules with 90% identity to those sequences, they would have said 100% nucleic acid sequence identity or 90% nucleic acid sequence identity rather than substantial nucleic acid sequence identity. The adjective "substantial", while acknowledging a close sequence identity, explicitly indicates that the Applicant had possession of polypeptides and polynucleotides having sequences with less than 100% sequence identity to SEQ ID NO: 1 or SEQ ID NO: 2, respectively, including sequences with "at least about 95% identity" and "at least about 98% identity" to SEQ ID NO: 1 or SEQ ID NO: 2 (as well as SEQ ID NOs 4, 5, and 7).

In addition, Applicants maintain that the phrase "at least" is commonly understood to

mean "not less than", and the phrase "at least about 90%" includes, for example, about 90%, about 91%, about 92%, about 93%, about 94%, about 95%, and about 98%. Thus, polynucleotides and polypeptides with 95% and 98% sequence identity to SEQ ID NO: 2 or SEQ ID NO: 1 (as well as SEQ ID NOs 4, 5, and 7) are supported by Applicants specification and the claims as originally filed.

Moreover, on page 14, the first full paragraph of Applicants' specification describes variants and derivatives as polynucleotides or polypeptides that, when compared to a reference molecule, contain amino acid substitutions, deletions, fusions, or truncations in the resulting variant polypeptide. Page 19, the third full paragraph describes how polypeptide variants can have conservatively substituted amino acids relative to Gux1, with the condition that the substitution does not change the secondary or tertiary structure of the polypeptide. Variants and derivatives can also have amino acid substitutions, deletions, or additions to the amino acid sequence outside the functional regions of the protein. Thus, the specification provides information about changing the polynucleotide and/or polypeptide sequence for Gux1 variants and derivatives, demonstrating Applicants' possession of polypeptides and polynucleotides having sequences with less than 100% sequence identity to SEQ ID NO: 1 or SEQ ID NO: 2 (as well as SEQ ID NOs 4, 5, and 7).

With regard to the new claims, Applicants' specification describes the subject matter of the claims in a manner such that persons of ordinary skill in the art can recognize what is claimed. For example, page 21, last paragraph of Applicants' specification points out that Gux 1 polynucleotides include, among other possibilities, molecules that hybridize with the nucleic acid sequence shown in Table 2 and SEQ ID NO: 2 under high stringency hybridization conditions. High stringency hybridization conditions include, for example, 2.5 hour incubation at 42° in 6x SSC/0.1% SDS. The last paragraph on page 12 and continuing on page 13 provides that a hybridization reaction conducted under high stringency conditions is one that occurs between molecules having 85% to 100% identity. Therefore, Applicants describe complementary polynucleotides having 85% to 100% identity to SEQ ID NO: 2 and this explicitly includes polynucleotides with 95% and 98% identity to SEQ ID NO: 2 (as well as polynucleotides encoding polypeptides represented by SEQ ID NOs 4, 5, and 7), well within the 85% to 100% range described in the specification.

For at least the above reasons, Applicants' specification describes the claimed subject

matter in a manner that reasonably conveys to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the claimed subject matter.

II. Conclusions

Applicants appreciate Examiner's finding that claims 7-11 and 78 are allowable if rewritten as independent claims and incorporating the limitations of the respective base claim.

For the reasons set forth above, Applicant respectfully submits the claims as filed are allowable and reconsideration and issuance of a notice of allowance are respectfully requested. If it would be helpful to obtain favorable consideration of this case, the Examiner is encouraged to call and discuss this case with the undersigned.

This constitutes a request for any needed extension of time and an authorization to charge all fees therefor to deposit account No. 14-0460, if not otherwise specifically requested. The undersigned hereby authorizes the charge of any fees created by the filing of this document or any deficiency of fees submitted herewith to deposit account No. 14-0460.

Respectfully submitted,



Paul J. White, #30,436

National Renewable Energy Laboratory
1617 Cole Blvd.
Golden, CO 80401
(303) 384-7575

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